

Abstract

The present invention relates to a pharmaceutical composition or a vaccine which comprises a mixture of viral protein molecules which are sequence variants of a single viral protein or of part of same. The invention furthermore relates inter alia to a DNA vaccine which codes for a mixture of structurally different virus proteins, the vaccine containing a mixture of sequence variants of a viral DNA molecule or of part of same which code for sequence variants of a viral protein or part. According to a preferred version of the invention, the viral proteins are sequence variants of the GP120 protein of the human immunodeficiency virus (HIV) which differ from each another in their amino acid sequence in the region of the V2 loop and/or of the V3 loop. The invention furthermore relates to the preparation of the virus vaccines including the intermediate stages or constructs, preparation processes and uses connected with them.